Amendments to the Specification:

Please replace paragraph [0018] with the following paragraph:

[0018] A first preferred embodiment of the present invention is shown in FIG. 1. An optical respirator flow monitor 2 represented by components within the dashed lines in FIG. 1 is substituted for a section of respirator breathing tube 4 as shown also in FIG. 6. Heating elements 6A and 6B are located on the patient side and the respirator side of the optical portion of the monitor. Diode laser system 8 produces a collimated coherent laser beam at a wavelength of 633 nm. Beam splitter 10 and mirror 12 separate the single beam from the laser system into two beams 14A and 14B both of which pass through windows 16A and 16B and the flowing fluid the flow rate of which is to be monitored. Interference fringes are produced in both beams 14A and 14B by shear plates 18A and 18B [[as]] shown in FIG. 1[[A]]. Detectors 20A and 20B are photodiode detectors and each are positioned to monitor the spectral intensity of a single selected interference fringe as shown in FIG. 1B. The spatial separation of beams 14A and 14B is precisely measured. An analog-to-digital converter board 22 converts both sets of signals to digital and these signals are correlated by digital processor 24 to determine the time difference between similar fringe intensity patterns and from these time difference values and the known spatial separation of the two beams the respirator flow and direction is determined. In this preferred embodiment Applicant used a single mode diode laser: 5 mW, 633 nm wavelength, 8 mm beam diameter, available from Power Tech. Inc., Part Number: PM(LD1212)TC5. The detectors each were a silicon photodiode: SiPIN, 1 mm diameter, 1 ns response time, available from Thorlabs Inc., Part Number: FDS010. The receiver aperture diameter was 1 mm. FIG. 1A is a sketch showing how shear plate 18A produces fringe patterns 26. Detector 20A is positioned to monitor only the peak intensity of only one of these fringes such as fringe 26A as shown in FIG. 1B.

Please replace paragraph [0042] with the following amended pargraph:

[0042] FIG. 7 shows another preferred embodiment of the present invention. In this case only one laser beam from laser diode 8A passes through the flowing fluid. The single beam 14C is collimated and passed through the flowing fluid. A single shear plate 18C is used to produce a large number of fringes. The interfered beam is split into two parts by polarizing beam splitter cube [[18D]] <u>20C</u> and separate fringes are monitored by detector 20A and detector 20B, each detector looking at only one fringe. The two monitored fringes are chosen so that they are representative of separate portions of beam 14C, one portion being displaced from the other a measurable amount in the direction of flow. Based on the measurements of fringe intensity flow rates are determined as described above.